

POPULATION TODAY

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Iranian women: New options now for family planning (see page 3.)

PRB

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FROM THE EDITOR'S DESK

What is it that people *don't* understand about demography that they *should*? This Editor's Desk looks at some of the public's blind spots.

"People—and especially press people—need to remember that *numbers* matter—not just *rates*," says PRB's Tom Merrick. "Everyone thinks about rates of increase or decrease, rather than how many people are actually involved. This causes a lot of confusion. For example, in many countries, although the birth rate is going down, the number of children being born continues to go up—because the number of women of childbearing age is so big."

"People are way off the mark in their notion of the size of different minority groups in the United States," points out Bill O'Hare, former director of policy studies at PRB. "A poll in a recent issue of *American Demographics* showed

that Americans think that African Americans form about 30 percent of the population and Hispanics about 20 percent. But the actual proportions are 12 percent for blacks and 8 percent for Hispanics."

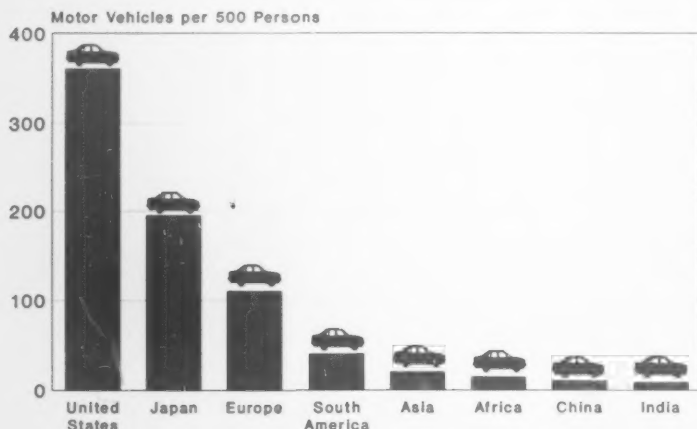
And, from conversations with my friends (who are generally a well-informed bunch) it appears that people seem to think that the world population will just keep growing forever. They haven't heard that demographers expect world population to peak about the middle of the coming century and then stabilize. This means that the nature of the population crisis of the next couple of decades will be determining the ultimate size of world population—whether it will be double or (gasp!) triple what it is today.

Next month—blind spots within the population community.

—Susan Kalish

SPEAKING GRAPHICALLY

Cars per Capita: New Demographic Indicator?



When the subject is population and environment links, counting cars is at least as important as counting people. The world's motor vehicle population is expected to double from today's 500 million to 1 billion early in the next century, according to the WRI report *Driving Forces*. In 1987, the United States, Japan, and Europe accounted for 69 percent of the world's total motor vehicle carbon dioxide emissions—a major cause of global warming—but emissions from other countries are increasing fast.

Source. *Driving Forces: Motor Vehicle Trends and Their Implications for Global Warming, Energy Strategies, and Transportation Planning*, by James J. MacKenzie, Washington, D.C.: World Resources Institute, 1990.

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Iran Eases Limits on Sterilization

In a sharp turnaround from past policies, the government of Iran announced in November that it has legalized sterilization and will provide the surgery free upon request. Women who desire no more children will be encouraged to undergo tubal ligations, according to Deputy Health Minister Bijan Sadrizadeh, the *Iran Times* reported. A woman must already have three children and her husband's permission. The government will also distribute other types of contraceptives free of charge, Sadrizadeh said.

Lowering legal barriers to sterilization represents a big change for Iran since its Islamic Revolution in 1979. At that time, the Islamic government adopted a generally pronatalist policy, although the Islamic clergy remained somewhat supportive of family planning. Prior to 1979, under the Shah, the government of Iran responded to U.N. population policy inquiries by describing its population growth and fertility level as too high and stating it was adopting policies to lower fertility. But in response to the same inquiries in 1982 and 1986, the Islamic government described its level of fertility and population growth as satisfactory and did not want to adopt any intervention policies. After the 1979 Islamic Revolution, family planning programs were interrupted, the legal ages of marriage were lowered, and the social stigma as well as legal barriers against polygamy loosened.

Iran's population growth rate is currently one of the highest in the world—a 3.6 percent rate of natural increase per year in 1990, with a total fertility rate of 6.3 lifetime births per woman.

During the eight-year war between Iran and Iraq, Iran's policymakers generally saw the high birth rate as a strategic plus—replenishing the pool of young men from which soldiers could be drafted. With the end of the war in August 1988, the population explosion is increasingly recognized as a major obstacle to economic reconstruction.

In 1950 the population of Iran was 14.2 million, but it doubled to 28.4 million by 1970. In 1990 Iran, with 54.6 million people, ranked as the 20th larg-



John Felt

Sterilization is allowed with three children and husband's O.K.

est country in the world. The U.N., in its 1990 world population assessment, projects that Iran's population will grow to over 100 million by 2020, at which time it will be the 14th largest country in the world. More than 8 million people now live in Tehran. They face a shortage of housing, double-shift public school sessions, severe traffic congestion, air pollution, and a very high cost of living. The recent surge of refugees from Kuwait and Iraq into Iran added to the country's population problem and increased the cost of living.

Climate for Change?

The recent legalization of sterilization is the latest sign of an increasingly favorable climate for policies for limiting population growth. In January 1989, the Islamic Consultative Assembly ratified a *National Birth Control Policy Summary*, detailing the First Five Year Economic, Social, and Cultural Development Plan for 1989 through 1993. This document set the goals of reducing the average number of lifetime births per woman to four children, slowing the annual natural growth rate to 2.3 percent by 2011, bringing 24 percent of reproductive-age women "under the cover of Family Planning Scheme by 1993," and preventing 1 million unwanted conceptions.

The policy document also advocates indirect measures to curb population growth, such as enhancing literacy, increasing school attendance for school-age girls, uplifting the status of

women, improving health conditions, and decreasing maternal and child mortality. The Statistical Center of Iran is conducting a series of surveys to estimate age-specific fertility and mortality rates. The first survey round was carried out in June 1990, with three to five additional survey rounds to follow at six-month intervals.

A media campaign has been launched to promote population awareness and encourage small family size. One television show dramatized a conversation between an older and a younger woman on the pros and cons of smaller families—both for the families and for Iran as a country.

How successfully will Iran implement its plan? Dr. E.S. Ghorbani, a Tehran obstetrician and gynecologist, stated in the International Planned Parenthood Federation's journal, *People*, that although the climate is favorable, "no significant and lasting reduction is likely to take place." Obstacles such as women's low legal and social status, their educational and employment levels, and limited access to contraceptives would prevent much progress.

There may be some movement in these directions, however. M.R. Faghihi, director of Iran's Population and Manpower Planning Bureau, states in a later issue of *People*: "a revision of laws and regulations which conflict with the aims and objectives of population policy is under consideration."

Different Islamic countries vary in their attitudes and policies toward sterilization and other methods of modern contraception. Female sterilization is also legal in Turkey, Tunisia, Indonesia, Pakistan, and Bangladesh.

There was no policy change on abortion, which Iran permits only to save a woman's life. Illegal abortion, however, occurs frequently in Iran's larger cities.

—N.R.

PRB's *Population Bulletin*, "The Demography of Islamic Nations," by John R. Weeks, examines Islamic populations in the Middle East, Africa, Asia, and the Pacific. Cost: \$8, with bulk order discounts available. Contact the Population Reference Bureau, 1875 Connecticut Avenue, N.W., Washington, D.C., 20009-5728, phone: 1-800-887-9881.

WASHINGTON WATCH



Last year, international population issues gained some momentum in Congress, but then got railroaded by the lengthy budget process. As this session begins, it seems a good bet that military activity in the Persian Gulf—while it lasts—will overshadow population issues in the House Foreign Affairs Committee and the Senate Foreign Relations Committee.

Good news for population advocates last fall was that total funding for international population assistance increased. In October, the Bush Administration and the House and Senate agreed to a \$14.7 billion foreign aid bill for fiscal year 1991. They earmarked \$250 million of the total to the international population assistance program (a \$34 million increase from the previous year).

Several Congressional skirmishes were fought to restore U.S. funding for the United Nations Population Fund (UNFPA), halted since 1985. H.R. 403, introduced by Rep. Peter Kostmayer (D-PA), directly addressed the issue, calling for a U.S. appropriation of \$500 million from the 1991 foreign aid bill for

international population assistance, of which about \$60 million would be contributed to UNFPA. A later proposal attempted to use UNFPA and the International Planned Parenthood Federation to channel \$1.5 million for Romanian family planning. The funds were approved, but not those conduits.

On the Senate side, Senator Patrick Leahy (D-VT), chairman of the Foreign Operations Subcommittee of the Appropriations Committee attempted to include renewed funding for UNFPA in the 1991 foreign aid bill. But, under a threat of a filibuster and administration opposition, the provision was removed from the bill.

The foreign aid bill became a con-

tinuing battleground over the Mexico City policy (see *PT*, December 1990). That policy, in force since 1984, denies U.S. funds to foreign, nongovernmental family planning organizations that provide abortion-related services or information, even with their own private funds.

Last spring, in the House Foreign Affairs Committee, Rep. Kostmayer offered an amendment to the supplemental authorization bill that would have revoked the Mexico City policy. It won by a vote of 17 to 10 but did not pass the Appropriations Committee's markup.

On the Senate side, Senators Tim Wirth (D-CO) and Albert Gore (D-TN) tried again with their global warming legislation, also calling for a large increase, up to \$500 million, for U.S. population assistance. The legislation never made it to a floor vote.

—Mark Haskell

Mark Haskell is the international program officer at the Population Resource Center.

Fertility Drops in Some Countries of Sub-Saharan Africa

For the first time, national fertility declines are being documented in Botswana, Kenya, and Zimbabwe—three countries of sub-Saharan Africa. High fertility combined with declining mortality had produced levels of population growth in the region that were among the highest ever recorded. Population policies and family planning programs in sub-Saharan Africa have tended to lag behind other regions due to low levels of socioeconomic development, traditional values that favor large families, poor service delivery infrastructure, and lack of information upon which to base population policies.

Currently, women in sub-Saharan Africa have an average of 6.4 children. Only an estimated 10 percent of couples use contraception.

Yet, recent surveys in African countries indicate a high potential demand for family planning. Substantial numbers of women not currently using contraception want no more children or want to space births. A 1989 Kenya

survey found that 26 percent of currently married women interviewed wanted to wait at least two years before their next birth, and an additional 49 percent wanted no more children. Yet, only 27 percent of all married women were using any contraception.

The use of contraceptives is rising in the three countries surveyed. Between 1984 and 1988-1989, contraceptive prevalence (modern plus traditional methods) rose from 16 to 33 percent in Botswana, 17 to 27 percent in Kenya, and 38 to 43 percent in Zimbabwe. Lifetime births per woman dropped from 6.5 to 5.0 in Botswana, from 7.7 to 6.7 in Kenya, and from 6.7 to 5.3 in Zimbabwe.

During the 1980s, many sub-Saharan African countries began developing comprehensive national population policies and expanding family planning programs.

—Virginia H. Poole

Virginia H. Poole is a social science analyst in the United States Agency for International Development.

Following the 1990 elections, several changes in the membership of the House Foreign Affairs Committee took place, some of them important to population issues. Rep. George Crockett (D-MI), Chair of the Africa Subcommittee, retired. Other departed members included: Reps. Lawrence J. Smith (D-FL—changed committees), Douglas Bosco (D-CA—defeated), Jamie Clark (D-NC—defeated), Michael DeWine (R-OH—retired), and Donald Lukens (R-OH—defeated). New members include Gerry Studds (D-MA), Austin Murphy (D-PA), Thomas Foglietta (D-PA), Thomas Sawyer (D-OH), Bill Orton (D-UT), and William Goodling (R-PA).

On the Senate Foreign Relations Committee, all the Democratic members are the same. Republican departures include Senators Gordon Humphrey (R-NH—retired), Connie Mack (R-FL—changed committees), and Rudy Boschwitz (R-MN—defeated). Two new Republicans will join the Committee, Senators Orrin Hatch (R-UT) and newly elected Hank Brown (R-CO).

May Chosen As Visiting Scholar

John May has been chosen as PRB's 1991-92 visiting scholar. The Visiting Scholar Program, established in 1981 by the Andrew W. Mellon Foundation, provides a unique career-building opportunity for scholars while strengthening and diversifying PRB's research resources.

May will investigate the population crisis in the African state of Rwanda and related policy interventions. The study has several aims. First, it will reassess the paradigms of fertility transition and population/development relationships in a context of extremely high fertility, an AIDs epidemic, agricultural shortages, and environmental degradation—factors that affect several countries in sub-Saharan Africa.

The study will also analyze past, current, and possible future policy responses to these problems, including organized family planning interventions. May will assess whether policy responses designed for Rwanda would be appropriate in other sub-Saharan countries and examine how research on these questions can be communicated to policy audiences and used in the policy development process.

May currently is the program coordinator for francophone countries at the Futures Group in Washington, D.C. Before that, he served as training coordinator for the IUSSP in Liege, Belgium; and with the United Nations in New Caledonia and Haiti.

He holds advanced degrees in demography from the Catholic University of Louvain and is completing further work at the University of Paris.

May will replace Dr. Maria Concepcion J. Cruz, PRB's current visiting scholar, who has been examining the linkage between population change and environmental degradation, focusing on the institutional mechanisms that mediate the impact of population pressures on future sustainability of resources.

SURVEY REPORT

United States Contraceptive Prevalence

Surgical sterilization remains the leading method of contraception among women in the United States, the National Center for Health Statistics reports. Married women were particularly likely to choose sterilization. Results of the National Survey of Family Growth (NSFG), taken in 1988, show that 36.2 percent of married women 15-44 were contraceptively sterile in 1988, up from 29.5 percent in 1982, and just 16.4 percent in 1973.

Pill use, which was the most common method among married women in 1973 with 25.1 percent using it, dropped to a low of 13.4 in 1982. Since then, however, pill use has rebounded to 15.1 percent in the 1988 survey as many women abandoned IUD use.

Among U.S. women age 15-44—married and unmarried—60 percent were using contraception in 1988.

The 1988 NSFG is the most recent in a series of national fertility surveys conducted since 1955. The 1988 data also provide a first opportunity to compare changes over time for unmarried and married women (unmarried women were first included in the sample in 1982). Among never married women, condom use went from 4 to 8 percent between 1982 and 1988. During that period, among formerly married women, sterilization rose from 39 to 51 percent and condom use rose from 2 to 6 percent.

Among all women age 15-44 using contraception (married and unmarried) about 27 percent were sterile in 1988 (see table). An additional 12 percent had partners who had been sterilized. The increase in male sterilization from 1982 to 1988 was much less than that for females. The pill (31

percent) and the condom (15 percent) were the most common reversible methods. Among reversible methods, pill and condom use showed modest increases, while IUD, diaphragm, and foam use dropped rather sharply.

Popularity of Methods among Users of Contraceptives, 1988

Method	Percentage using method
Sterilization	39%
Woman sterile	27
Man sterile	12
Non-surgical contraceptive	61
Pill	31
Condom	15
Diaphragm	6
IUD	2
Foam	1
Other and traditional methods	6
TOTAL	100%

Note. Includes married and unmarried women in the United States, age 15-44, using contraceptives.

Source. National Survey of Family Growth, 1988 data.

About 34 percent of all U.S. women in this age group who were capable of conceiving children were not using contraception, including 12 percent who never had intercourse and 9 percent who were pregnant, postpartum, or seeking pregnancy.

Black women were more likely than whites to use female sterilization, and less likely to rely on male sterilization. Among white women, those with the least education were much more likely to rely on sterilization than those with the most education.

—C.H.

Copies of the National Center for Health Statistics's *Advance Data* series, which contain data and analyses of the NSFG, are available by calling (301) 436-8500.

DEMOGRAPHER'S PAGE

Infant Mortality: Who's Number One?

by Carl Haub and
Machiko Yanagishita

Few products of the statistician's art command as much attention from the media and the public as rankings. Be it the top 20 cities in population size or countries by per capita income, rankings are the stuff of pride when the news is good, or cause for alarm when it is not. But, while rates may appear to be straightforward measures, they often mask a host of nitty-gritty definitional issues that may cloud a seemingly clear comparison.

One ranking that receives much journalistic attention in the United States is how the nation's infant mortality rate compares to other countries. The subject is often quite sensitive because it addresses just how well a nation apparently cares for its youngest members. This topic has been covered in this space in the past, but on this occasion, we bring some additional considerations to the issue.

Suppose we wish to see just which country can claim the number one position for this measure—the country in which an infant is least likely to die. Infant mortality, of course, is a *concept*, one that considers the risk of death to infants. To measure the risk, however, we need some sort of *rate*. To obtain the infant mortality rate (IMR), the annual number of deaths to infants below age one is divided by the number of births in that year and multiplied by 1,000. For Finland in 1989: 367 infant deaths/63,388 live births x 1,000 = 5.8 infant deaths per 1,000 live births.

Since we are comparing only the countries with the very lowest rates, our task is made easier by the overall

high quality of the data. While the data are not perfect, they generally satisfy three main requirements: 1) complete reporting of births and deaths in a national vital statistics system; 2) close comparability of definition; and 3) timely reporting of the data. To this we might add a corollary—a sufficient number of events so that the rates do not oscillate capriciously. Iceland, with a population of only about 250,000 has as few as 15 infant deaths in a year, so that its rate is subject to sharp annual fluctuations. The Icelandic rate dropped from 6.2 in 1988 to 4.4 in 1989, an unrealistically large change over such a short period.

Table 1 shows infant mortality rates for the 25 countries with the lowest rates in the world. Never before have IMRs been so low in so many nations. About 20 countries have IMRs in the single digits. At this point, one might well wonder just how low the IMR can go. Japan was the first to reach 5.0 (in 1987) and then its rate continued to drop. While there will almost certainly be some infant deaths from unavoidable birth defects, contagious disease, or accidents, the Japanese rate may not have yet bottomed out. Other countries, however, have reported increases after reaching low levels. Switzerland, for example, rose to 7.3 after dropping to 6.8 in 1987, although these changes could be in part a function of small numbers, since Switzerland has less than

one-tenth the number of infant deaths as does Japan.

Countries in Table 1 are ranked for 1987, the most recent year for which information is fully available, although a certain amount of reshuffling by rank has occurred since then. Since the countries' rates are typically declining, however, it would not be fair to compare IMRs of different years. The table includes the 25 countries with the lowest-ranking IMR in 1987 in which registration is complete and there were at least 50 infant deaths. "Complete" registration means that the countries report that

Table 1. Infant Mortality Rates, by Country, 1987 - 1989, Ranked for 1987

Rank in 1987	Country	Infant deaths per 1,000 live births		
		1987	1988	1989
1	Japan	5.0	4.8	4.4
2	Taiwan	5.3	6.1	6.0
3	Sweden	6.1	5.8	5.7
4	Finland	6.2	6.1	5.8
5	Switzerland	6.8	6.8	7.3
6	Canada	7.3	7.2	-
7	Hong Kong	7.4	7.4	-
7	Singapore	7.4	7.0	7.5
9	Netherlands	7.6	6.8	6.8
10	France	7.8	7.8	7.5
11	Ireland	7.9	9.2	-
12	Denmark	8.3	7.6	8.4
13	Norway	8.4	8.0	-
13	Germany (East + West)	8.4	7.6	7.4
15	Spain	9.0	-	-
16	United Kingdom	9.1	9.0	8.5
17	Belgium	9.4	9.2	-
18	Australia	9.8	9.2	7.7
18	Austria	9.8	8.1	8.3
18	Italy	9.8	9.5	8.9
21	New Zealand	10.0	10.8	10.2
22	United States	10.1	10.0	9.7
23	Israel	10.7	10.0	10.0
24	Trinidad and Tobago	11.4	-	-
25	Greece	11.7	11.0	-

Notes. Data from U.N. Statistical Office, *Population and Vital Statistics Report*, various issues and the 1988 *Demographic Yearbook*; *Demographisches Jahrbuch Österreichs*, 1989 Central Statistical Office, Vienna, 1990; *Recent Demographic Developments in the Member States of the Council of Europe*, Council of Europe, Strasbourg, 1990; and by direct telephone contact with national sources. Countries with low IMRs not shown in the rankings due to a small number of cases include Iceland, Barbados, Netherlands Antilles, Brunei, the Channel Islands, the Faeroe Islands, Iceland, the Isle of Man, Liechtenstein, Luxembourg, Malta, Monaco, American Samoa, and Guam. (-) indicates data not available.

they register 90 percent or more of births and deaths to the U.N. Statistical Office. While that evaluation is not always accepted at face value by demographers, in the case of the countries in the table, there should be few difficulties. For Taiwan, which is not recognized by the U.N., the rates are the officially reported values. We also include Hong Kong and Singapore, although some exclude these "city states" as not geographically comparable to other nations.

At this point, we have gathered all the available published rates, arranged them by year, and determined as far as possible that the data are complete. But are the rates comparable? This is a very important point when we consider how very low these IMRs are and the rather small number of events upon which they sometimes are based. Sweden, for example, had 115,900 births in 1989, but only 700 infant deaths. Statistically, infant deaths are considered "rare events," for which small changes in the absolute numbers (for any reason) can dramatically affect rates.

In order for an infant death to be classified as such, the infant must have been born alive. For this reason, differences in the ways that countries define live births can affect infant mortality rates. Generally, as infant mortality decreases (as in the developed countries in Table 1), we would expect stillbirths to account for a larger share of mortality around the time of birth. The significance of the stillbirth-to-IMR comparison would be less in developing countries, where inadequate public health conditions and poor postnatal care account for most infant deaths. The World Health Organization (WHO) recommends that a birth be considered live if the newborn shows any one of the following signs of life: heart beat, breathing, umbilical cord pulsation, or voluntary muscle movement. If one of those occurs, the birth is live and, if the child dies in the first year, that is an infant death. The extent to which the WHO-recommended prac-

tice is carried out in the real world cannot be known; it can be assumed that some variation will exist among and even within countries.

Although there is a growing body of evidence that differences in the definition of infant death have moved closer to the standard recommended by WHO, some countries do not adhere strictly to the WHO guidelines for classifying live births versus stillbirths. Some countries may note deviations in their publications. France, for example, has often classified as stillbirths infants that die before their births are registered. The former East Germany required action of the heart and lungs, and the Soviet Union excludes infants less than 1,000 grams in weight, 35 centimeters in length, and less than 28 weeks gestation if they die within seven days of birth. Japan has long been known for its classification of some infant deaths as late fetal deaths (that is, stillbirths),

although some observers believe steps have been taken to correct the situation. Any of these practices could make the IMR artificially low.

Let us first approach the problem by comparing the number of stillbirths and infant deaths in certain countries. Table 2 shows the reported number of births, stillbirths, and infant deaths for 1985, the most recent year for which data are easily obtainable.¹ For most countries, the ratio of stillbirths to infant deaths lies between 0.45 and 0.60.

Japan, which has the world's lowest infant mortality rate, also reports an unusually high number of stillbirths per infant deaths, 0.98, nearly one stillbirth per infant death. This ratio has been quite consistent in Japan, although it has dropped from about 1.2 since the 1960s. Does this represent a continuing misclassification of infant deaths as stillbirths?

Continued on next page

Table 2. How New Calculations of Risk of Death to Infants Would Change Rankings of Selected Countries (1985 data)

Infant mortality rate ranking	Country	IMR 1985 (1)	Live births (2)	Stillbirths (3)	Infant deaths (4)	Still-birth/Infant death ratio ^a (5)	Total risk ^b (6)	New rank (7)
1	Japan	5.5	1,431,577	7,762	7,899	0.98	10.9	3
2	Finland	6.3	62,796	241	396	0.61	10.1	1
3	Sweden	6.8	98,463	388	666	0.58	10.7	2
4	Switzerland	6.9	74,684	345	515	0.67	11.5	5
5	Hong Kong	7.5	76,126	295	572	0.52	11.3	4
6	Canada	7.9	375,727	1,629	2,982	0.55	12.2	6
6	Denmark	7.9	53,749	236	427	0.55	12.3	7
8	Netherlands	8.0	178,136	1,054	1,430	0.74	13.9	9
9	France	8.3	768,431	5,658	6,389	0.89	15.6	16
10	Norway	8.5	51,134	279	434	0.64	13.9	9
11	Ireland	8.9	62,175	516	552	0.93	17.0	19
11	Germany (West)	8.9	586,155	2,414	5,244	0.46	13.0	8
13	Singapore	9.3	42,484	227	394	0.58	14.5	11
14	United Kingdom	9.4	750,728	4,189	7,030	0.60	14.9	14
14	Belgium	9.4	114,030	764	1,073	0.71	16.0	18
16	Germany (East)	9.6	227,648	1,187	2,175	0.55	14.7	12
17	Australia	10.1	242,910	1,128	2,452	0.46	14.7	12
18	United States	10.6	3,760,561	18,703	40,030	0.47	15.5	15
19	New Zealand	10.8	51,798	254	560	0.45	15.6	16

Source: United Nations *Demographic Yearbook*, various issues. Note that countries cited are not exactly the same as for Table 1.

^aStillbirths divided by infant deaths.

^b"Total infant mortality risk," a measure that includes risk of being stillborn (the sum of stillbirths plus infant deaths, divided by the sum of live births plus stillbirths, multiplied by 1,000).

Demographer's Page

Continued from previous page

In Japan, social and cultural customs do tend to favor the notion of recording an infant death as a stillbirth. The Family Registration System (*Koseki*) includes all the vital events, such as infant deaths, that occur in a family, but stillbirths are not included. Although times are changing, there is still a perception that the death of a child or infant would be an undesirable entry in the *Koseki*. Japanese officials contacted, however, denied that infant deaths being registered as stillbirths might be affecting these statistics. Thus, we cannot draw definitive conclusions. Nevertheless, the very high ratio of stillbirths to infant deaths (as well as other detailed data not shown) definitely raises some suspicion.²

In ranking countries, there is a fairly straightforward way to get around the possibility that some misclassification of infant deaths may be occurring. If we add stillbirths and infant deaths together, and divide by all births (live births plus stillbirths) a different measure results: a "total infant mortality rate" which includes the risk of being stillborn. This new measure, shown in column 6 of Table 2, renders stillbirth misclassification problems moot. When we then rank countries by the *total* risk to infants who come to term (column 7 of Table 2), some shifts occur. Finland captures the number one position and Japan drops to third. The United States, incidentally, picks up a few spots and rises to number 15.

This discussion illustrates, but by no means exhausts, the many problems that confront the analyst who sets out to set up a table of rankings on infant death or almost any subject. Other problems that do not show directly in the tables are that one year's rate for a country may differ from publication to publication, rates considered provisional (or final) may not be tagged as such, or reported rates may change subsequently without explanation.

Other factors doubtlessly affect international comparisons but are difficult to measure. A high abortion rate in a country may avert some high-risk pregnancies, thereby lowering ultimate infant mortality. The Netherlands has two

series of IMRs, one using the infant's age at its last birthday and the other the age on December 31. In recent years, the Netherlands *Statistical Yearbook* has not consistently used either.

While infant mortality rankings are dramatic and often receive

extensive media play, such lists should be treated with caution. When rates are as low as they are in developed countries and the numbers are as small as they are for some countries, international comparisons may lose much of their meaning. The United States, for example, with its large population and 4 million-plus births has about 39,000 infant deaths each year. It becomes difficult to compare the U.S. rate to that of Finland when that latter country has only about 360 infant deaths. Even small definitional differences in Finland can have a large effect upon rates.

Changes in ranking are given significance when they are used to evaluate a country's performance or to guide public policy. In the United States, the fact that the country is not "number one" may be received with surprise. Not only that, the United States is about 20th on the list and, it is often pointed out, ranks behind some developing countries (actually, only Hong Kong and Singapore, which some would classify as newly industrialized countries).

We can look at infant mortality data in many different ways. For example, we are accustomed to using infant *mortality* rates. What if we viewed it from the other direction, infant *survival*? Then we would, for example, say that 995 out of 1,000 babies survive in Japan while 991 survive in the United Kingdom. Is that a significant difference?

We could say that infant mortality in



Country comparisons on infant mortality: An emotional subject we should look at more critically.

the United States is "twice as high" as in Japan and that would be correct. Or, we could also say that a baby in the United States has essentially the same chance of surviving as one in Japan and that would also be correct. Or, we can translate rates back to actual numbers of infants affected and point out that, if the United States had the same low IMR in 1989 as Japan reported, about 22,000 of the reported 39,000 U.S. infant deaths would not have taken place.

All in all, it may be that our analyses of infant mortality should pay less attention to national rankings and focus more closely on causes of death and higher risk groups by poverty, ethnicity, and residence. Once again, we learn the same old lesson. While we want to make our point with statistics, we also need to mind their limitations.

Notes

1. Note that the countries listed are not exactly the same as for Table 1.
2. In response to inquiries, the director of vital statistics division of the Japanese Ministry of Health and Welfare stated that physicians and registered midwives are required by law to issue both a birth and death certificate for an infant dying shortly after birth, and that the law is strictly followed. Japanese obstetricians confirmed that the government closely monitored observance of recording procedures. Experts and obstetricians contacted, however, did not rule out the possibility of such misclassification occurring in today's Japan, considering the very high ratio of stillbirths to infant deaths.

CONNECTIONS

Teaching Kit Links Population and Environment

During the summer of 1990 five secondary geography teachers, all active in their state Geographic Alliance programs, joined the Population Reference Bureau staff in Washington, D.C. to assist in the development of a new package of teaching materials. These materials will provide secondary geography teachers with reading materials, lessons, and strategies to teach population and environmental issues in the context of sustainable development.



The lessons in the package are based on articles written by major journalists in developing countries on topics concerning the environment—articles produced by PRB's prize-winning *Global Edition* project. These articles open windows on the world, giving authentic regional or country perspectives, supplemented by a worldwide overview. The lessons will help develop students' concern for the environment, a sense of responsibility for its protection, awareness of the links between population and the environment, and the realization that they live in a "global village."

The package of materials will be ready for distribution in the spring of 1991 and will include: 1) a teacher's guide with about 25 lessons and resource lists; 2) a student resource book with readings on population and environmental issues in the world, Africa, Asia, Latin America, and selected countries within those regions; 3) a *World Population Data Sheet*; and 4) a *World Environment Data Sheet*.

The CONNECTIONS teaching package will initially be distributed through a series of workshops given by PRB and the teachers who participated in the development of the materials. States that have already reserved workshops

Continued on next page

SOFTWARE

Historical demographers take note. This data management system can help you put turn-of-the-century census data into useable shape.

The Texas Census Data System was developed by Myron Gutmann and Amy Holmes for the Program on Historical Demography and Community History at the University of Texas at Austin. The package was designed to simplify the use of the U.S. manuscript (microfilm) census returns for teaching and research. A group of students or a research team can work together sharing the tasks of data entry and data management for decennial census data from 1850 through 1910. The system works through a menu-driven system of data entry, manage-

ment, and electronic mail (to allow the user team to share information). A sample data base is included, which contains 600 cases selected from the U.S. Manuscript Census for Gillespie County, Texas, 1860.

The program requires PC-DOS, MS-DOS 3.0 or higher, and either dBASE III Plus or Foxbase+; network implementations require the appropriate network software. We were not able to try out this dBASE program, but it comes with a 35-page booklet of readable documentation and suggestions for use. For more information, contact Wisc-Ware, University of Wisconsin-Madison, 1210 West Dayton Street, Madison, Wisc., 53706, (800) 543-3201.

—S.K.

POPULATION UPDATE

Estimated United States Population:

As of April 1, 1990	249,632,692 ^a
As of April 1, 1989	247,072,000 ^b

^aCensus figure that includes military and civilian employees and dependents overseas.
^bPRB estimate based on 1990 census total and reported births, deaths, and immigration during the 1989-1990 period.

Estimated World Population:

As of March 1991	5,333,000,000
Annual growth	93,000,000

Extrapolation from the mid-1990 population on PRB's 1990 *World Population Data Sheet*.

Latest Provisional Statistics for the U.S.: September 1990

Item	12 months ending with September					
	Number		Rate			
	1990	1989	990	1989	1988	1987
Live births	4,145,000	3,981,000	16.6	16.1	15.9	15.6
Deaths	2,174,000	2,142,000	8.7	8.7	8.9	8.7
Natural increase	1,971,000	1,839,000	7.9	7.4	7.0	6.9
Marriages	2,435,000	2,393,000	9.7	9.7	9.7	10.0
Divorces	1,189,000	1,159,000	4.8	4.7	4.8	4.8
Infant deaths	38,500	38,800	9.3	9.8	10.0	10.0
Population base (in millions)	...	...	250.0	247.6	245.0	242.7

Note. Rates are given per 1,000 population, except for infant deaths, which are given per 1,000 live births.
Source. *Monthly Vital Statistics Report* (Vol. 39, No. 9) from the National Center for Health Statistics.

PAA 60th Annual Meeting March 21-23

In the year after the Census, the Population Association of America traditionally meets in Washington, D.C. PAA's 60th annual meeting, March 21-23, 1991, is no exception. Experts in demography, population, family planning, and health will gather in the venerable Omni Shoreham Hotel at Calvert Street and Connecticut Avenue, less than a mile from the Population Reference Bureau's new quarters.

PT will be there, furiously scribbling notes, and will provide full coverage of the conference in its May issue.

This year, PRB wants your feedback on PT and other PRB publications. Please stop by the Population Reference Bureau display and fill out our Reader's Survey.

See you there....

For more information about the meeting, contact: PAA, 1722 N Street, N.W., Washington, D.C. 20036, (202) 429-0891.

Related conferences held just before PAA, also at the Omni Shoreham:

- **Accessing Public Information**, March 18-21. Contact: APLIC-International, c/o William Barrows, Family Health International, P.O. Box 13950, Research Triangle Park, N.C. 27709.

- **Workshop on Psychosocial Factors in Population Change**, March 19-20. Contact: Laurie Krieger, PATH, 1990 M Street, N.W., Suite 700, Washington, D.C. 20036, (202) 822-0033.

Connections

Continued from previous page

for their Geographic Alliance programs include Wisconsin, New Hampshire, Minnesota, Missouri, Illinois, Michigan, Massachusetts, Hawaii, and Alabama.

—K.C.

For more information contact: Kimberly Crews, Director, CONNECTIONS Project, Population Reference Bureau, Inc., 1875 Connecticut Ave. N.W. Suite 520, Washington, D.C. 20009, (202) 483-1100.

TAKE A NUMBER

Censused cities: Population size and growth rankings are often a source of pride for cities and metro areas. Just-released data from the 1990 Census provides fodder for bragging rights:

Population Size Top 13

City	Population
New York	7,322,564
Los Angeles	3,485,398
Chicago	2,783,726
Houston	1,630,553
Philadelphia	1,585,577
San Diego	1,110,549
Detroit	1,027,974
Dallas	1,006,877
Phoenix	983,403
San Antonio	935,933
San Jose	782,248
Indianapolis	741,952
Baltimore	736,014

Population Growth Top 10

City	Population	% Change 1980-1990
Mesa, Ariz.	288,091	89.0
Rancho Cucamonga, Calif.	101,409	83.5
Plano, Tex.	128,713	77.9
Irvine, Calif.	110,330	77.6
Escondido, Calif.	108,635	68.8
Oceanside, Calif.	128,398	67.4
Bakersfield, Calif.	174,820	65.5
Arlington, Tex.	261,721	63.5
Fresno, Calif.	354,202	62.9
Chula Vista, Calif.	135,163	61.0

Note: Cities of 100,000 or more population.

Surprised to see Houston as the fourth largest city? Remember that Western cities have fewer restrictions on annexing new land areas than Eastern cities. Philadelphia, for example, is a mere 136 square miles, while Houston is over 570 and growing from annexations.

And what about fast-growing Rancho Cucamonga—isn't that the town Jack Benny used to joke about on the radio? The cities that head the fastest-growing list are found in high-growth states and most had small population bases to begin with in 1980. The fastest-growing big city (1 million or more population) was San Diego, also in California. Its 1990 count of 1,110,549 was a 26.8 percent increase over 1980.

—C.H.

ADDENDA

"No Turtles Allowed"



**NO SE ARRIESGUE CON OTROS.
ENVIE SU DINERO A MEXICO
CON WESTERN UNION.**

He's not a Teenage Mutant Ninja turtle, but this brand-X tortoise does represent a trend. Western Union apparently recognizes a market worth cultivating in the growing population of U.S. Hispanics with roots in Mexico. Translated, the headline reads: "Don't risk it with others. Send your money to Mexico with Western Union."

CURRENT READINGS

PRB welcomes materials on population topics for possible inclusion in *Current Readings*. Publishers may address review copies to Book Review Editor, *POPULATION TODAY*, Population Reference Bureau, 1875 Connecticut Ave., N.W., Suite 520, Washington, D.C. 20009-5728.

NATURE AGAINST US: The United States and the World Population Crisis, 1965-1980, by Peter J. Donaldson. Chapel Hill, N.C.: University of North Carolina Press, 1990. 207 pages. \$31.45, hardback. ISBN 0-8078-1905-0.

As long as there has been birth control, there have been critics of deliberate attempts to limit fertility; these critics have often said that birth control is against nature. Donaldson, in choosing the title for this lively, important work, turns that around: "In the case of human reproduction, however, nature may be against us—in that the biology of human reproduction makes dangerously high fertility more likely than low levels of human reproduction." The book reviews U.S. policy toward "dangerously high fertility" from the initiation of U.S. foreign aid efforts in the population arena in the 1960s until 1980.

This book is of special interest to those of us who have traveled overseas with U.S. Agency for International Development (A.I.D.) funds to work with foreign governments on their population policies. Its interest for the general population reader may be more limited, particularly because of the brevity of the chapters that attempt to put U.S. policy in a global perspective.

In this rather personal work, Donaldson makes use of a variety of sources: face-to-face interviews; archives at the Population Council and A.I.D.; anonymous gifts of correspondence files, memos, and reports; and his personal experiences in Thailand and Korea.

Public health specialists and social scientists have always had somewhat different viewpoints on what it takes to bring about reduced fertility, writes Donaldson.

Health specialists approach it as a technical issue—the need for family planning clinics, service providers, and commodities, all of which can be "easily" supplied with enough resources. Social scientists assess fertility change as part of a subtle complex process, not easily amenable to a technical fix.

U.S. policy was initially carried out by a public health specialist, Reimert Ravenholt. The book pays a great deal of attention to the controversy during the Ravenholt era, even more interesting because his legacy—good and bad—still affects A.I.D.-funded population work.

While very much a critical assessment, the work ends on a positive note, quoting demographer Frank Notestein to summarize the course of U.S. population policy: "I don't think we did so damn bad."

—Nancy Yinger

UNDOCUMENTED MIGRATION TO THE UNITED STATES: IRCA and the Experience of the 1980s, edited by Frank D. Bean, Barry Edmonston, and Jeffrey S. Passel. The RAND Corporation and the Urban Institute, Washington, D.C.: Urban Institute Press, 1990. 271 pages. \$38.75 hardback, \$21.75 paper. ISBN 0-87766-490-0.

THE CAUTIOUS WELCOME: The Legalization Programs of the Immigration Reform and Control Act, by Susan Gonzalez Baker. The RAND Corporation and the Urban Institute, Washington, D.C.: Urban Institute Press, 1990. 195 pages. \$36.75 hardback, \$19.00 paper. ISBN 0-87766-494-3.

These two well-executed works come out of the combined efforts of the Rand Corporation and the Urban Institute, through the Ford Foundation's ongoing Program for Research on Immigration Policy. The books investigate the implementation and impact of the 1986 Immigration and Control Act (IRCA), including how the 1986 law may have influenced the

provisions of the Immigration Reform Act of 1990. IRCA offered a one-time-only amnesty program to illegal aliens who had been in the United States since 1982 (with a separate program for agricultural workers). At the same time it moved to halt illegal immigration by stiffening employer sanctions and increasing the budgets of U.S. border patrols. Both books concentrate on the Mexican immigrants, since they make up such a large share of the illegal population.

The first book, *Undocumented Migration*, brings together nine essays that make critical use of a variety of new data to examine the impact of IRCA. The authors find that IRCA achieved its goal of reducing the flow of undocumented migrants into the United States, at least in the short term. However, much of this gain was achieved by changing the status of those already in the country.

In *The Cautious Welcome*, Susan Gonzalez Baker examines how IRCA's legalization program worked and its implications for the future. A two-year study in eight U.S. cities (Los Angeles, San Jose, San Antonio, El Paso, Houston, Chicago, New York, and Miami) found that the turnout for the legalization program was heaviest among those of Mexican and other Hispanic origin, who were aided by publicity materials in Spanish.

Advocacy groups played a crucial role, counseling individuals and working with INS (and sometimes filing class action lawsuits with the agency to keep the process moving). The special legalization program for agricultural workers did not work well, however, with widespread evidence of fraud.

—Susan Kalish

SPOTLIGHT

SAUDI ARABIA

Population (mid-1990 est.): 15 million
 Land area: 830,000 sq. miles
 Population density: 18 per sq. mile
 Births per 1,000 pop.: 42
 Deaths per 1,000 pop.: 8
 Rate of natural increase: 3.4 percent
 Total fertility rate: 7.2 children per woman
 Infant mortality rate: 71 infant deaths per 1,000 live births
 Life expectancy at birth: 63 years
 GNP per capita: \$6,170
 Capital: Riyadh

by Alex de Sherbinin

Dominating the Arabian peninsula, Saudi Arabia is the 12th largest country in land area in the world. Saudi Arabia shares borders with seven Arab nations (including Jordan, Iraq, and Kuwait to the north). Its coastline extends for 1,560 miles along the Red Sea and Persian Gulf. The kingdom is ruled by the royal family led by King Fahd. About 85 percent of the population belongs to the Sunni sect of Islam; the remainder is Shi'ite.

The historic hearth of the country lies in mountain valleys bordering the Red Sea, where trade with Europe and North Africa led to early settlements—notably Mecca and Medina, the ancient cities sacred to Moslems. Between 1980 and 1990, the percentage of the population living in urban areas rose from just under half (49 percent) to more than three-fourths (77 percent). During that time, the population of the capital city, Riyadh, rose from 300,000 to 1.8 million. Much of the country is characterized by sparse settlement in oasis areas and scattered modern installations related to the oil trade along the coast of the Persian Gulf.

Until the discovery of oil in 1938,



Saudi Arabia evoked little more than story-book images of bands of desert sheiks to Western minds. Since that time, Saudi Arabia, with one-fourth of the world's known oil reserves (257.5 billion barrels), has emerged as a major player in the world economy. Exports of crude and refined oil make up approximately 90 percent of total exports, and accounted for some \$22 billion in receipts in 1988.

Relying on substantial underground aquifers, Saudi Arabia's small and highly subsidized agricultural sector pursues self-sufficiency through large-scale irrigated wheat projects. However, if consumption continues to increase at its present rate of 10 percent a year, U.S. Department of Agriculture experts estimate that Saudi aquifers could run dry in 10 to 20 years, with serious implications for the country's water supply.

Using the windfall profits from oil, the government launched an ambitious course of modernization, investing large amounts in petro-chemical plants and other industries, and constructing highways, airports, schools, hospitals, and other infrastructure.

The government's stated policy is large-scale construction with future needs in mind. Considering the kingdom's extremely high population growth rate of 3.4 percent per year, there is good reason for careful planning. No official efforts have been made to bring down the total fertility rate of 7.2 lifetime births per woman. Responses to U.N. surveys indicate that the country limits the

use of contraceptives and provides no support for family planning programs. Free education and health care, free land, and interest-free housing loans ease economic barriers to large families. As in much of the oil-rich Arab world, an implicitly pronatalist policy is seen as the shortest route to cutting down on the demand for foreign labor—and attendant foreign influences.

The Saudis' distrust of foreign—and particularly Western—ways has earned them a reputation as the most conservative country in the Arab world. Ancient restrictions on alcohol, dress, and women's roles are still enforced. Ironically, dependence on foreign labor is at least partly due to the extremely low labor-force participation rate among women, at just 4.5 percent.

Roughly 60 percent of Saudi Arabia's work force of 4,200,000 people are guest workers, including Egyptians, Jordanians, Yemenis, and South Asians. But given the kingdom's age structure—about half of its population is under age 15—it is likely that demand for foreign labor will fall in the future.